MEMOREX

388

Dual Director
Storage Control Unit

Memorex 3888 Dual Director Storage Control Unit

The 3888 microprocessor based architecture supports the 3680's exclusive enhanced protocol allowing throughput improvements at the string level.

The Memorex 3888-23 Disk Cache Controller increases the performance of the 3682 Subsystem by providing cache storage of up to 64 megabytes in eight megabyte increments.

The Memorex 3888 Dual Director Storage Control Unit is one of the most technologically advanced disk control units available today. The 3888 combined with either the Memorex 3650, 3690 or 3680/6240 DASD results in a disk subsystem with superior throughput and outstanding reliability under the most exacting user requirements.

Standard Features

- **Configuration Flexibility**

The Memorex 3888 Storage Control Unit offers complete flexibility in your selection of Memorex DASD. Each of the two independent storage directors can support up to 32 actuators, thus each director can control up to 2 full strings of 3680, 6240 or 3682 or up to 4 full strings of other Memorex disk storage devices (3650, 3652, 3695).

The Memorex 3888 utilizes a unique single model architecture which will even allow the change of the Memorex disk storage device type supported without any changes to the hardware. The 3888 is the functional equivalent of the IBM 3880 model 1, 2 or 3. By simply loading the appropriate microcode via one of the two flexible disk drives in the 3888, device support can be changed. This guarantees compatibility with all future Memorex disk products. The 3888 is also available as Model 23 Cache Control Unit in 8 megabyte increments from 8 to 64 megabytes.

- **Attachment Flexibility**

The Memorex 3888 Storage Control Unit attaches to the data streaming channels of the IBM 4341, 4361, 4381, 3081, 3083, 3084, 3090 or compatible processors. The 3888 can be attached to 3031, 3032, 3033, 3042 or compatible processors that are either equipped with the data streaming feature or direct to the 3888 with the optional speed matching buffer feature.

The 3888 is supported by the IBM MVS/XA, MVS/SP, MVS/370, VM/SP, VM/XA, VM/HPO or DOS/VSE/SP software environment. Dynamic Path Reconnect (DPR) is supported only in the XA environment.

- **Superior Throughput**

The 3888 Storage Control Unit fully supports the performance improvement incorporated via the Memorex MAPS (Maximum Availability Path Selection) system for the 3680/6240 and IDI (Intelligent Dual Interface) on the 3650/52. In addition to supporting the MAPS dual porting capability the 3888 microprocessor based architecture supports the 3680/6240 families exclusive enhanced protocol. This enhanced protocol reduces the overhead associated with the communications between the microprocessor in the storage director and the microprocessor in the Memorex 3683/3685 MAPS string controller. This enhanced protocol will result in throughput improvements at the string level.

- **Outstanding Reliability**

For assured reliability, the 3888 Storage Control Unit incorporates numerous enhancements in its design including LSI circuitry, independent powered dual directors, and rigorous quality computer testing. Reliability not only governs our design but is the watchword in our manufacturing process as well. Memorex has incorporated reliability enhancements into its manufacturing processing including the utilization of advanced techniques and the use of only fully burned-in components.

- **Maximum Availability**

Reliability and availability go hand in hand. The 3888 Storage Control Unit has been designed to provide maximum accessibility to the disk subsystem. The 3888 contains 2

discrete independently powered storage directors which, depending on the channel switching incorporated, will allow full access to your disk subsystem if in the unlikely event a failure should occur in one of the directors. Not only are the storage directors redundant, Memorex has included redundant flexible disk drives for changing microcode or maintenance testing.

- **Performance Solutions**

The Memorex 3888-23 Dual Direction Cache Storage Control Unit contains all of the reliability and performance of the 3888, specifically for the attachment of the 3680, 6240 and 3682 DASD product families. The 3888-23 offers between 8 to 64 MB of the cache memory and operates without modification with the complete set of current IBM cache commands. Incorporating a separate cache management processor, the Memorex 3888-23 offers maximum data availability and increased subsystem performance to your system and its users.

- **Improved Maintainability**

Each of the 3888 directors incorporates a microprocessor which can execute diagnostic routines on the director itself as well as the entire subsystem. The results from these maintenance routines can be stored, in 1 of the 2 flexible disk drives, for subsequent use by Memorex Customer Engineering personnel utilizing the unique Portable Maintenance Terminal. This tool can interpret the results of the maintenance diagnostic routines as well as running additional diagnostics while the disk subsystem is available for processing via the other director in the 3888.

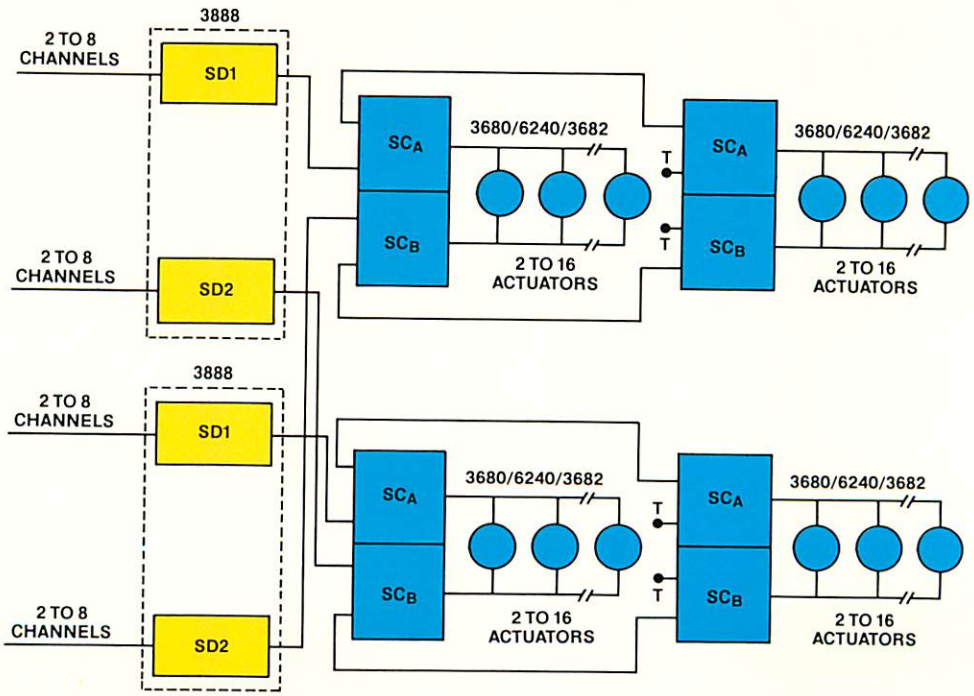
All of the functions of the Portable Maintenance Terminal can be emulated from a Remote Support Center utilizing the RS232 interface, standard in the 3888. Results of diagnostics run on the 3888 can be transferred to the Remote Support Center for analysis and recommended action. The implementation of the remote Support Center enables Customer Engineers to be dispatched to a site with a better understanding of the failure as well as the needed spare parts.

The Memorex Customer Engineering also has a sophisticated subsystem diagnostic test routine which can be run on the central processing unit (in a non-dedicated running mode).

Optional Features

- **Speed Matching Buffer**—This option allows the attachment of 3680 disk storage devices to the block multiplexor channels with data transfer rates of less than 3.0 megabytes per second. The speed matching buffer has the flexibility to run at any data transfer rate between 1.5 and 3.0 megabytes per second.
- **Remote Switch**—This option provides the relocation of the enable/disable switch to a configuration panel in a remote location.
- **2 Channel Switch**—This feature allows access from 2 channels of the same or different central processing units to each director. This provides a total of up to 4 channels to have access to the 3888, 2 per director. This feature is standard on all 3888-23 cache control units.
- **4 Channel Switch**—This feature allows access from 4 channels of the same or different central processing units to each director. This provides a total of up to 8 channels, 4 per director, to access the 3888.
- **8 Channel Switch**—This feature allows access from 8 channels of the same or different central processing units to each of the directors. This option provides full access to both directors by all 8 channels.

3888 CONFIGURATION



3888 Specifications

MEMOREX

25 Years of Technological Leadership

Dimensions

- Height: 71.75 inches (182 cm)
- Width: 44.5 inches (113 cm)
- Depth: 32 inches (81.3 cm)
- Weight: 800 lbs (362.8 kg) for 3888
  919 lbs (417 kg) for 3888-23

Service Clearances

- Front: 30 inches (76 cm)
- Rear: 30 inches (76 cm)
- Sides: no access required.

Cable Lengths

Power Cord 4.57 m (15 ft) for 60 Hz;
4.57 m (15 ft) and 7.62 m (25 ft) for 50 Hz

EPO 121.9 m (400 ft) maximum

I/O Channel A storage Director can be attached directly to a system channel or daisy-chained with another Storage Control Unit. Cable length specifications for the 3680 attachment are:

- Between one SD and a block multiplexor channel, maximum length is 85 m (280 ft).
- Between one SD and a 303X, 3042 Model 2, 3082, a 4331 Model 2, or 4341, the maximum length is 121 m (400 ft). For attachment of one SD with Speed Matching Buffer, maximum length is 107 m (350 ft).
- The maximum length for all other channels is 78 m (255 ft).
- Reduce these maximum lengths by 5 m (15 ft) for each intervening SCU or SD connected between the 3888 SD and the channel.

Environmental Conditions

Operating

Temperature: 60° to 90° F (16° to 32°C)
Relative Humidity: 20% to 80%
Maximum Wet Bulb: 78°F (26°C)
Temperature Variation: 5°F/hour (2.8°C/hour)

Non-Operating

Temperature: 50° to 120° F (10° to 49°C)
Relative Humidity: 10% to 90%
Maximum Wet Bulb: 78°F (26°C)
Temperature Variation: No condensation

Power Requirements

	60Hz	50Hz
Voltage	200/208/220/230 ± 10%	200/380/400/415 ± 10%
Frequency	60 ±.5 Hz	50 ±.5 Hz
Phase	Three phase	Three phase
Branch service	15 amperes	15 amperes

Maximum Heat Dissipation

4300 BTU/hr for 3888
8440 BTU/hr for 3888-23

Power

1.4 KVA for 3888
2.7 KVA for 3888-23

Airflow

11.3 m^3/min (400 cfm)

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